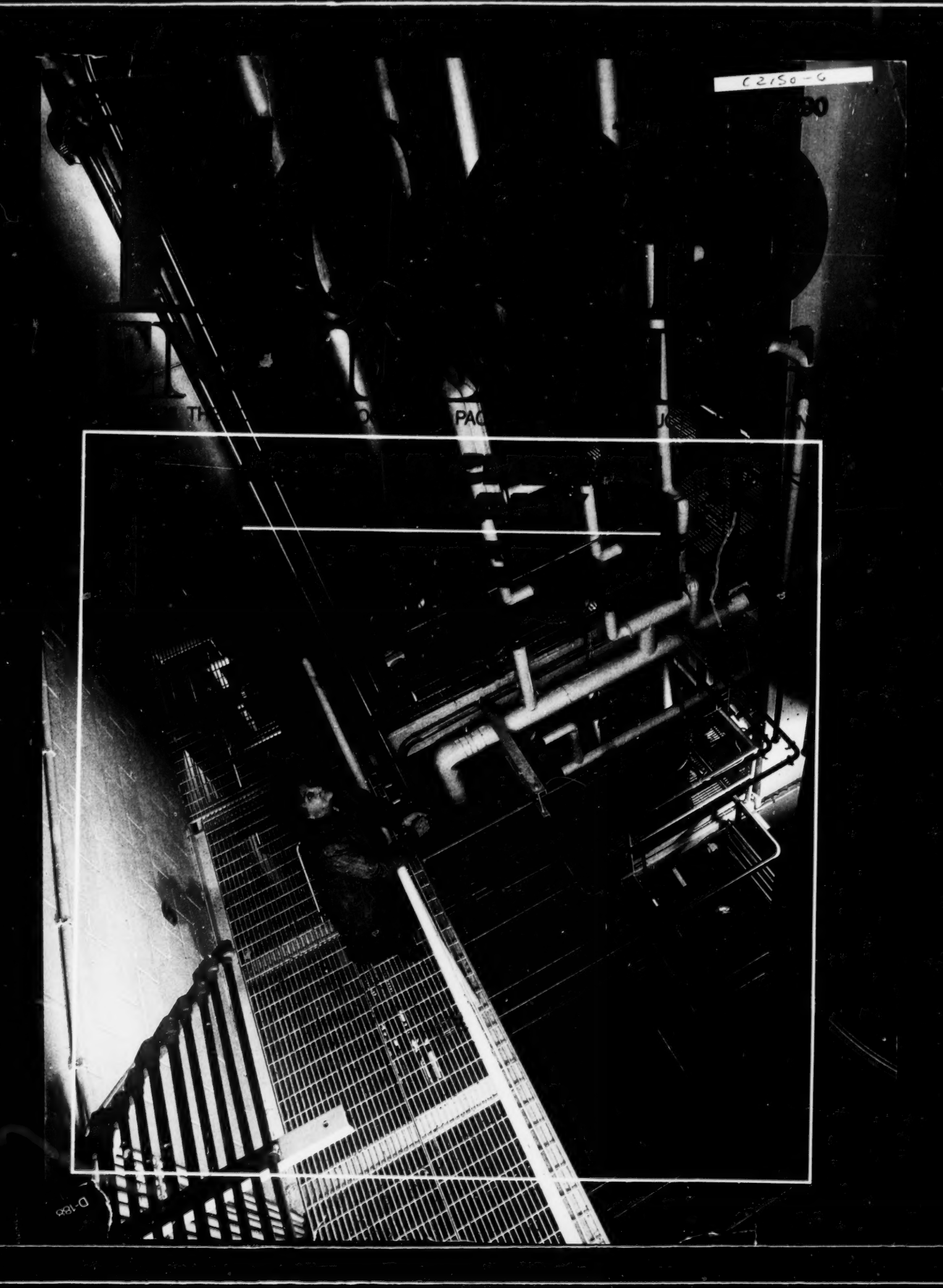

C2150-G

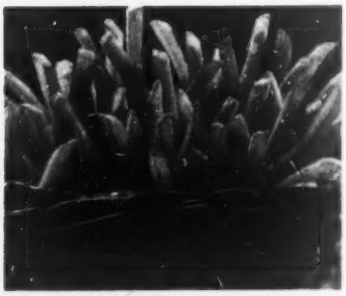
FOOD ENGINEERING

ABOUT THE COVER

FE's new plant of the year is Mazza Cheese Co.—a dream attained by the quiet persistence of a determined woman.
PAGES 62 TO 70

SPECIAL EMPHASIS

PAGES 79 TO 82



OIL RESEARCH: **PAGE 24**

ENGINEERED FOODS

24 Major R&D Effort Pays Off at P&G
Procter & Gamble's reputation for investing in long-term basic research is legendary. Its 1988 bill for R&D was $652 million.

26 Marketplace—New Microwave Meals
Microwaveable entrees are being developed specifically for children as well as for adults.

28 Flavor Vocabulary for Communications
A flavor vocabulary has been developed by McCormick to improve communications between the flavor maker and the food processor during the product development stage.

31 Choices—Tobacco Ownership of Food

FOOD PACKAGING

44 Degradable Packaging Films At Issue
The market in degradable packaging films is driven by the common misperception that degradable materials will eventually disappear in landfills or evaporate into thin air when littered.

46 Hot Fill Cup Debuts At FEAST
Packaging for a new juice line can be hot filled without the sides panelling once the product cools.

46 Biodegradable Flexible Foodwraps
Rutgers scientists have affirmed the biodegradability of flexible vinyl foodwrap films.

50 Waste Management Steams Ahead
After success recycling solid waste, one company has begun tackling society's formidable foe: polystyrene.

FEATURES

62 New Plant of the Year
Mazza Cheese Co.'s new mozzarella plant processes more than 1 million lbs. of milk per day, and combines unique technologies with unprecedented environmental standards to satisfy the booming demand for pizza here and abroad.

73 Equipment Buyers Survey
FE's Executive Advisory Panel predicts further growth and million dollar budgets in equipment purchases.

79 Packaging Films—Protection 'in the Bag'
Films are working harder than ever to increase product shelf life. Metallized films increase the shelf life of products and their sophisticated graphic appeal helps get products off the shelf.

PROCESSING & CONTROL

86 Cook-chill System Cuts Labor
Specialized process dramatically reduces chance of spoilage while cutting labor costs.

88 Dreyer's 'Fourth Shift' Controls Costs
Microcomputer systems, Fourth Shift software and a local area network link three ice cream plants and control production costs.

88 Core Technology Improves Frozen Corn
Coring cobs can upgrade the quality of frozen corn-on-the-cob, according to a Cornell professor.

90 Plastic Belts for Harsh Environments
Ultra-violet (UV) stabilized plastic conveyor belts replaced wire-mesh belts to eliminate downtime in the rugged, corrosive job of handling field-fresh tomatoes.

DEPARTMENTS

9 Editorial
12 Calendar
15 Industry Report
106 New In Print
108 People

NEW PRODUCTS

100 Sanitation & Maintenance
102 Handling & Distribution
104 Instruments & Quality Control

JESSE H. NEAL AWARD-WINNING PUBLICATION

Permission to photocopy for internal use or the internal use of specific clients is granted by Chilton Company for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $1.00 per copy of the article, plus 25¢ per page is paid directly to the CCC, 21 Congress St., Salem, MA 01970. Special requests should be addressed to The Editor. (0193-323X/86 $1.00 + 25¢)

FOOD ENGINEERING® (ISSN 0193-323X) March 1990, Vol. 62, No. 3. Published monthly by Chilton Company, Chilton Way, Radnor, PA 19089 (Telephone 215/964-4000). Chilton Co., one of the ABC Publishing Companies, a part of Capital Cities/ABC Inc., New York, NY. Second Class Postage Paid at Wayne, PA 19087 and additional mailing offices. Title registered in U.S. Patent Office

™Chilton Company, 1990. All rights reserved.

POSTMASTER: Send form 3579 to Food Engineering, Post Office Box Number 2035, Radnor, PA 19089.

FEAST, not famine in San Francisco

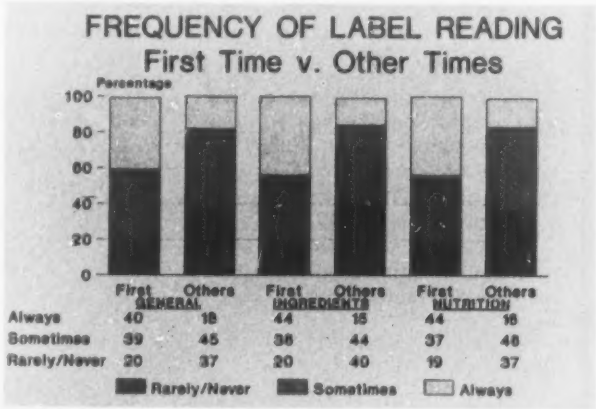
Stephen Presser, moderator, stalks members of a panel of nine food company heads and journalists during "Socratic method" segment of NFPA session on "Fear, Trust and Acceptable Risk." (Source: NFPA.)

The NFPA (National Food Processors Association) convention and exhibit in San Francisco in February drew about 2,500 convention attendees and a little over 100 exhibitors. Designated FEAST (Food Exposition About Science and Technology), the get-together exposed processors to a variety of the significant issues of the day (liability, overhead management, marketing to the over-50 segment). But the keynotes struck during the four days were clearly ***risk assessment, risk communication, and labeling****, areas that have been churning the industry for some time, and areas where NFPA feels it can provide significant leadership. During one lively debate among industry leaders and reporters, it was pointed out that business must put forward food company voices that are introspective about the industry, rather than the reactionary PR campaigns that look to plug up problems after it is too late.*

'Seize the day' urges president of Curtis Burns Foods

Cognizant of the pressure the food industry has been under from the pesticide scare, and hoping to stir the industry to seize the moment to guide its own destiny in conflicts yet to come, David McDonald, president of Curtice Burns Foods and outgoing chairman of NFPA, outlined a "new mission" for the association at their annual meeting in San Francisco. This mission "clearly spells out the future role of the National Food Processors Association to become the ***industry's principal scientific resource*** *in dealing with issues of public policy." The food industry, and the scientific organizations that support it, "are now playing in a new public arena with skillful adversaries often driven not necessarily by the desire to do good works...but by self-serving financial and sometimes political considerations." And so McDonald, in his closing action as chairman, called for recruits to "a crusade...to join together to more effectively perform in the adversarial arena." Senior management must take public issues seriously and work closer with trade associations, he added.*

New labeling study unveiled

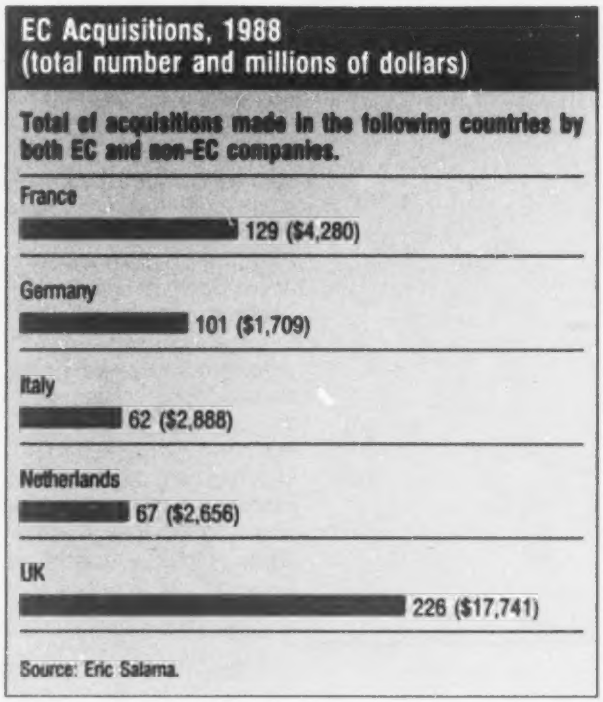


The NFPA study on consumer label reading habits was finally unveiled. (Source: NFPA.)

The long-awaited NFPA study, "Food Labeling and Nutrition: What Americans Want," was the focus of a major afternoon session at the association's annual convention. The session, "Consumers Speak Out on Labeling," covered areas like frequency of label reading by consumers, influence of labeling on ***purchase decisions****, products for which ingredient and nutrition labeling has the greatest/least influence, type of information read on labels, how sufficient the information was, clarity of information provided by the labels, and the rating by consumers of six label formats. Copies of the study are available from the National Food Processors Association. Contact Donna Smith at (202) 639-5934.*

If you're waiting for 1992, look out, it's here

According to Eric Salama, associate director of the Henley Centre in London, 1992 is happening already. In his remarks to the annual meeting of FPM&SA (the Food Processing Machinery & Supplies Association) in February, Salama pointed out that while in the past pan-European companies were usually American and Japanese, not European, that has changed with the accelerating merger activity. Also, European companies want to roll out standardized product rather than accept the old saw that local tastes make this impossible. Increasingly, Europeans identify themselves as "European," not as nationals of specific countries.



REDUCE WASTE WATER SURCHARGES!

Reducing B.O.D., fats, oil and grease and suspended solids from your plant waste water can significantly lower your sewage costs. The ALLOY-design Gravity Separator provides a primary treatment of waste water for separating floating fats and heavy solids. This self-cleaning unit can be used in conjunction with an existing system or stand alone. The ALLOY Gravity Separator can be engineered to fit your existing space and is sized to meet your waste water flow rate. This economical system will rapidly pay for itself through lower surcharges and labor costs.

The ALLOY Airation System for further separation of Fats, Oil and Grease is available with initial installation or can be added later if needed.

ALLOY

ALLOY HARDFACING AND ENGINEERING CO., INC.

1201 Clover Drive South
Minneapolis, MN 55420
612/881-7515 1-800-328-8408

Circle 13 on Inquiry Card

Circle 14 or see FEM, p. 246 →

EQUIPMENT BUYERS SURVEY

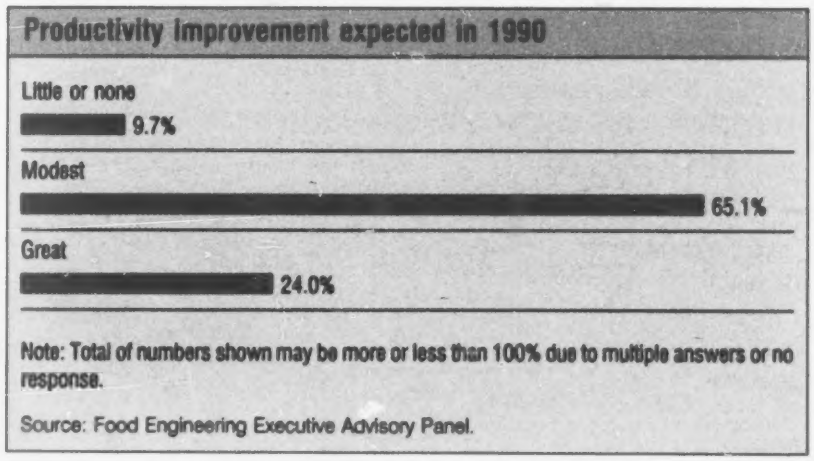
PROCESS EQUIPMENT BUYERS SURVEY

Our Executive Advisory Panel crystal ball sees further growth and million dollar budgets.

PATRICIA M. DILLON
SENIOR ASSOCIATE EDITOR

While Standard & Poor's outlook for 1990 described the economy as "a featureless landscape," *Food Engineering*'s most recent survey of its Executive Advisory Panel has revealed undiminished enthusiasm. What else could explain the willingness of almost a quarter of the survey respondents to budget $4 million or more for new equipment? And approximately 23 percent were confident enough to earmark one to four million dollars for capital investments.

Obviously, expectations for increased production is fueling preparations for this equipment buying spree. Approximately 37 percent of the sur-


Productivity improvement expected in 1990
Little or none
9.7%
Modest
65.1%
Great
24.0%
Note: Total of numbers shown may be more or less than 100% due to multiple answers or no response.
Source: Food Engineering Executive Advisory Panel.

←Circle 45 or or see FEM, p. 367

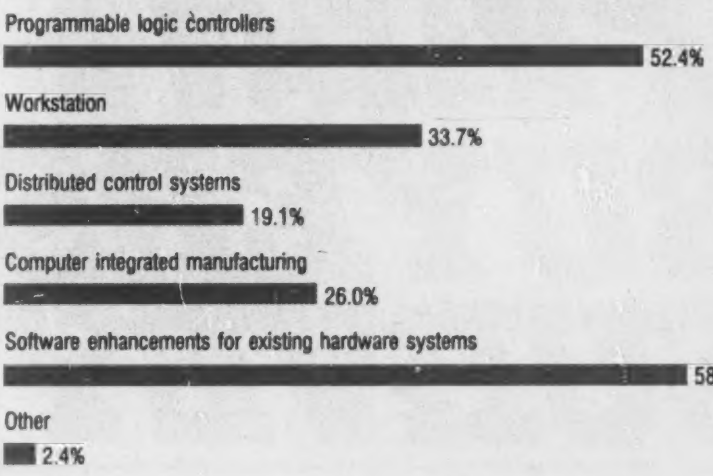
vey respondents plan to increase their production by more than 10 percent and an additional 31 percent are ready to increase manufacturing anywhere from six to 10 percent.

As could be expected, small companies have the greatest potential for growth and are inherently more flexible than their larger counterparts. Our survey showed just over half of the companies with less than 100 employees were planning to increase production by more than 10 percent while only a third of their competitors with 500 or more employees were willing to do so.

Results from our survey show that respondents appear to be getting maximum use of their equipment and facilities since most said they were at 80 to 89 percent efficiency. Dairy and canned foods producers said their efficiency was within the 80 percentile range while frozen food producers nudged their efficiency rate into the 90 to 99 percent range.

To further the quest for efficiency, approximately 64 percent of our panel expected to retrofit their present facility while 39 percent were ready to invest in new construction. And a substantial 61 percent of the respondents

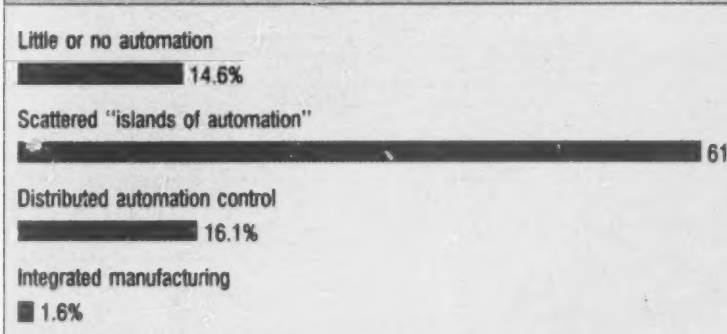
Process control purchases planned for location in 1990



Note: Total of numbers shown may be more or less than 100% due to multiple answers or no response.

Source: Food Engineering Executive Advisory Panel.

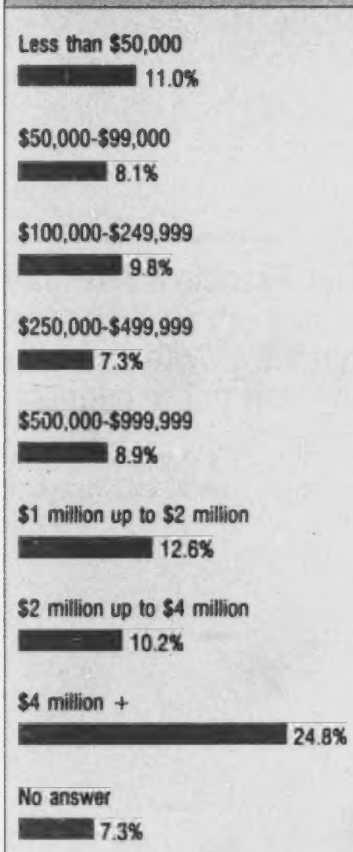
Estimate of company-wide automation



Note: Total of numbers shown may be more or less than 100% due to multiple answers or no response.

Source: Food Engineering Executive Advisory Panel.

Company-wide money budgeted for purchase of equipment, 1990



Source: Food Engineering Executive Advisory Panel.

were ready to improve plant layout and design.

Equipment upgrades are expected to be made by 89 percent of the panel with a more than half of the frozen food, confectionery, fats and oils, cereals, meat, bakery, dairy, flavor, canner, and beverage producers saying they were in "moderate" need of better equipment.

Panelists also voiced their concerns with packaging and process control. Respondents called for better line monitoring, fill weight control, material loss monitoring and bulk material handling.

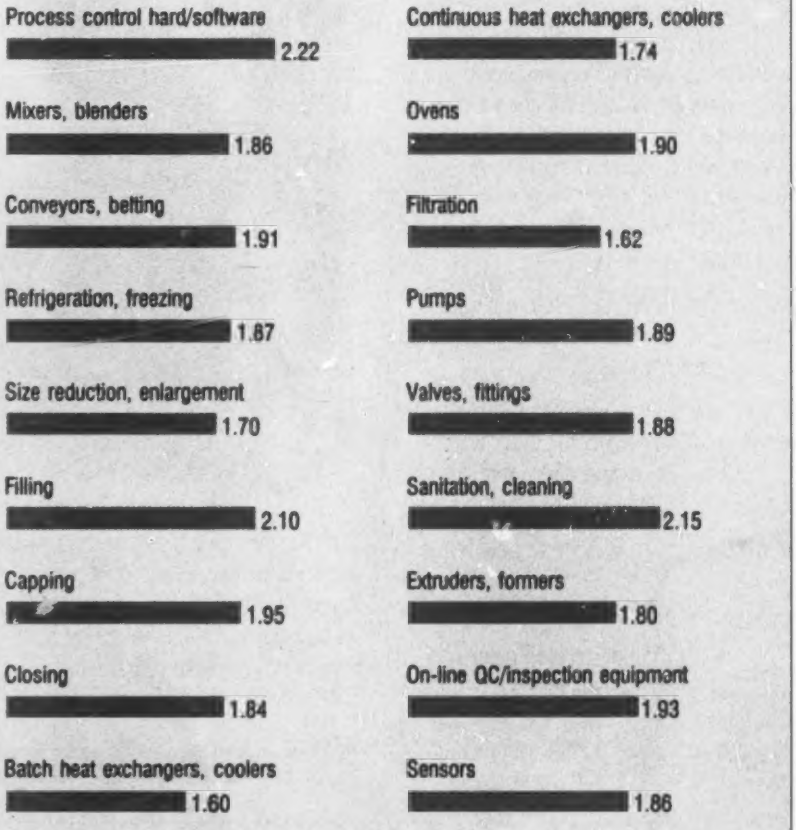
Computer Integrated Manufacturing (CIM) was a hot button. Many companies are struggling to install CIM while others such as one East Coast food manufacturer said, "We must establish CIM at one plant soon to prove benefits before our 'champion' retires." A director of technical services from the South wants to "assemble and merge data from 'islands of automation.'" Another engineer recognized the importance of using automation to maintain product quality and not use it simply as a way to reduce a plant's headcount. However, most participants expect automation to improve productivity, product quality and cut labor.

It is interesting to note that more than half of the companies polled described their place on the automation scale as being "scattered islands of automation."

Only two percent described themselves as being completely integrated with automation from top to bottom while 15 percent said they had little or no automation. The majority, obviously, are in between these extremes.

Unlike Wall Street economists who only see a "featureless landscape," members of the food industry see a panorama of opportunity from the creation of new products to the discovery of new markets. Suppliers will do well to note the issues raised by our panel to avoid being a part of the landscape that is overlooked.

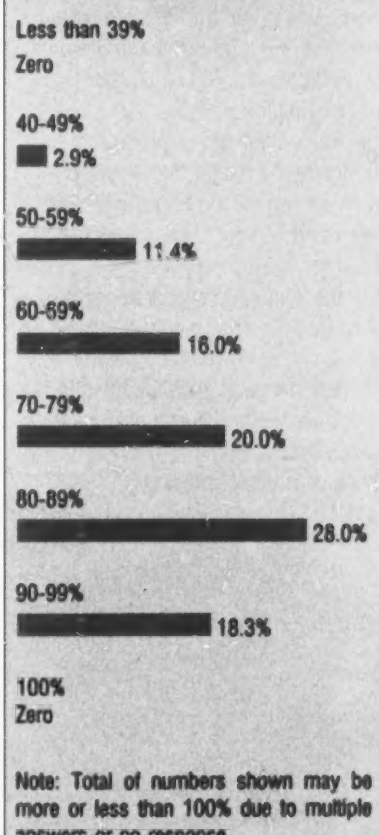
Company-wide purchase priority for 1990



Low Priority = 1; Some Priority = 2; High Priority = 3

Source: Food Engineering Executive Advisory Panel.

Real plant productivity
(not capacity utilization)



Note: Total of numbers shown may be more or less than 100% due to multiple answers or no response.

Source: Food Engineering Executive Advisory Panel.